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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,269	04/26/2001	Keith Gary Boyer	00-111-TAP/STK 00111 PUS	9705

7590 03/17/2004

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EXAMINER

CHAUDRY, MUJTABA M

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/843,269

Applicant(s)

BOYER ET AL.

Examiner

Mujtaba K Chaudry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) 3 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to because:

- Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 3 is objected to because of the following informalities:

- In line 4 of the claim the phrase "...filled comprises determining..." needs to be changed to "...filled by determining..."

Claim 5 is objected to because of the following informalities:

- In line 3 of the claim the term "that" needs be replaced with "if."

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- Claim 1 recites the limitation "matrix" in line 7. There is insufficient antecedent basis for this limitation in the claim.
- Claim 2 recites the limitation "codeword" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Senshu (USPN 6349400 B1).

As per claims 1 and 7, Senshu substantially teaches (title and abstract) a data recording/reproduction method and apparatus that is carried out in a disc format such that error correction codes interleaved with respect to the direction of data on a disc are collectively blocked into an error correction unit and that the input/output order of user data in an ECC block as an error correction unit is made coincident with the direction of processing of the error correction codes. Thus, coding can be started at the time when necessary data for generating one

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code is transmitted, without waiting for transmission of data for one ECC block. Transmission of user data can be started at the time when correction of one code is completed, without waiting for completion of correction operation for one ECC block. Also, since the direction of correction codes is the same as the direction of user data, no memory for rearrangement of data is required and the hardware structure can be minimized. The data transmission/reception takes place between the buffer memory and the external device, bus arbitration can be easily carried out. Furthermore, Senshu teaches (col. 24, lines 17-64) an optical disc recording/reproducing method comprising the steps of rotating an optical disc at a predetermined type of constant velocity and carrying out data recording/reproduction in a disc format such that error correction codes interleaved with respect to the direction of data on a disc are collectively blocked into an error correction unit and that the input/output order of user data in an ECC block as an error correction unit is made coincident with the direction of processing of the error correction codes. The data recording/reproduction is carried out in a disc format such that the ECC block is constituted by one or more sectors, the sector is constituted by a plurality of frames. Senshu teaches that the data recording/reproduction may be carried out in a plurality of disc formats having different ECC block sizes in accordance with the setting of the number of sectors and interleave length. Senshu teaches the data recording/reproduction may also be carried out in a disc format such that the number of data within the segment is smaller than the number of data within the frame and that the correction code position is updated for each segment while the interleave rule is met in causing the data position on the disc to correspond to the data position on the ECC block.

Senshu does not explicitly teach to determine the size of the user data and the amount of matrix that will be filled by the received user data as stated in the present application.

However, Senshu teaches (col. 7, lines 4-51) the data recording/reproduction is carried out in a plurality of disc formats having different ECC block sizes in accordance with the setting of the number of sectors and interleave length. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a determining means to determine the size of the user data before recording within the data recording method and apparatus of Senshu. This modification would have been obvious to one of ordinary skill in the art because one of ordinary skill in the art would have recognized that determining the size of the memory matrix before recording would enable accurate recording and therefore reduce time.

As per claims 2 and 8, Senshu substantially teaches, in view of above rejections, (col. 7, lines 45-52) data recording/reproduction is carried out, for example, in a disc format such that the number of user data within the segment is smaller than the number of data within the frame and that the correction code position is updated for each segment while the interleave rule is met in causing the data position on the disc to correspond to the data position on the ECC block.

As per claims 3-4 and 9-10, Senshu substantially teaches, in view of above rejections, (col. 10, lines 2-65) causing the data position on the ECC block on the assumption that the code length is an odd number while the number of data within the segment is smaller than the number of data within the frame, a disc format is used such that the correction code position is updated for each segment while the interleave rule is met. Thus, the one-to-one correspondence between the data on the disc and the data on the ECC block can be realized.

As per claims 5-6 and 11, Senshu substantially teaches, in view of above rejections, (col. 7, lines 45-52) data recording/reproduction is carried out in a disc format such that the number of user data within the segment is smaller than the number of data within the frame and that the

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correction code position is updated for each segment while the interleave rule is met in causing the data position on the disc to correspond to the data position on the ECC block. Furthermore, Senshu teaches, as stated previously, causing the data position on the ECC block on the assumption that the code length is an odd number while the number of data within the segment is smaller than the number of data within the frame, a disc format is used such that the correction code position is updated for each segment while the interleave rule is met. Thus, the one-to-one correspondence between the data on the disc and the data on the ECC block can be realized. The Examiner would like to point out that while Senshu only teaches the writing aspect of data to a recording medium with the interleave technique, reading the data would be done a similar but reverse manner and therefore would have been obvious embodiment of Senshu.

### ***Conclusion***

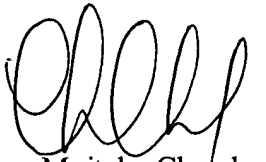
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Senshu teaches a data recording/reproduction method and apparatus that is carried out in a disc format such that error correction codes interleaved with respect to the direction of data on a disc are collectively blocked into an error correction unit and that the input/output order of user data in an ECC block as an error correction unit is made coincident with the direction of processing of the error correction codes. Applicants are invited to read/review additional pertinent prior art that has been included herein.

Any inquiries concerning this communication should be directed to the examiner, Mujtaba Chaudry who may be reached at 703-305-7755. The examiner may normally be reached Mon – Thur 7:30 am to 4:30 pm and every other Fri 8:00 am to 4:00 pm.

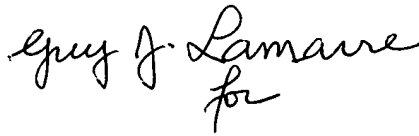
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If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, Albert DeCady at 703-305-9595. The fax phone number for the organization where this application is assigned is 703-746-7239.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist at 703-305-3900.



Mujtaba Chaudry  
Art Unit 2133  
March 11, 2004



Albert DeCady  
Primary Examiner